

CA DEPARTMENT OF WATER RESOURCES

**Updated Informative Digest**

TITLE 23. WATERS  
DIVISION 2. DEPARTMENT OF WATER RESOURCES  
CHAPTER 7. WATER LOSS AUDITS AND WATER LOSS CONTROL  
REPORTING

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## Updated Informative Digest

The purpose of this Updated Informative Digest is to explain the changes to the proposed regulations originally circulated on March 3, 2017 and recirculated with changes on May 18, 2017. Changes to the proposed regulations are indicated in ~~strikeout~~ and red double underline. These changes are being circulated for comments from the public and interested parties. Below the text of the changed language is the 'Reason for Change.' This explains the ~~thinking~~ rationale that resulted in the newly proposed language. Please limit comments to the proposed changes in language. **Please comment by June 2, 2017.**

### Title Change

*The Chapter title was changed as follows:*

Chapter 7. Water Loss Audits and Water Loss Control Reporting (New).

*Reason for Change: "Loss" was added to provide a more accurate title for the proposed regulations.*

### Section 700

*Subsection 700 (a) is changed as follows:*

(a) The Department is directed, under California Water Code (CWC) §10608.34, to adopt rules for:

(1) the conduct of standardized water loss audits by urban retail water suppliers of their potable water systems;

*Reason for Change: The Department added "potable water systems" to clarify that this regulation only applies to potable water systems owned and operated by urban retail water suppliers.*

*Subsection 700 (b) is changed as follows:*

(b) The Department is further directed, under California Water Code §10608.34, to update the rules described in subsection (a) as necessary, within six months after the release of a new edition of the American Water Works Association's AWWA's Water Audits and Loss Control Programs, Manual M36.

*Reason for Change: The Department added "potable water systems" to clarify that this regulation only applies to potable water systems owned and operated by urban retail water suppliers.*

*Subsection 700 (c) is added as follows:*

(c) The Department will update these regulations within six months after an edition update of the AWWA's Water Audits and Loss Control Programs, Manual M36 (e.g., after the fifth edition release) or upon an AWWA next generation version update of its related Free Audit Software (e.g., after the version 6.0 release).

*Reason for Change: The Department added this new subsection to clarify that the Department is directed to update the regulations when either the AWWA methodology is changed or when the software is changed. However, in cases where minor corrections to the software have taken place, the Department will not perform a rulemaking for changes within the version, as the changes are not substantial.*

## **Section 700.1**

*Subsection 700.1(a) is changed as follows:*

(a) "Apparent losses" means losses due to unauthorized consumption and/or nonphysical (paper) losses in customer consumption attributed to inaccuracies associated with customer metering, or systematic handling errors, or unauthorized consumption.

*Reason for Change: The Department made changes to this definition to clarify the term and more closely match the defined term in the American Water Works Association, Water Audits and Loss Control Programs, Manual M36 (Manual M36).*

*Subsection 700.1(b) is added as follows:*

(b) "Authorized consumption" means the volume of water taken by registered customers, the water supplier, and others who are implicitly or explicitly authorized to do so by the water supplier for residential, commercial, industrial, or agricultural purposes. In the AWWA Free Water Audit Software, this category of components does not include water supplied to neighboring water utilities (water exported), which is instead included in the water supplied volume component. Authorized consumption does include water consumed in such activities as firefighting and training, flushing of mains and sewers, street

cleaning, watering of municipal gardens, public fountains, frost protection, building water, and so forth. Authorized consumption may be billed or unbilled, metered or unmetered.

*Reason for Change: The Department added “authorized consumption” because it was a previously undefined term and for clarity. This definition was taken from the Manual M36.*

*Subsection 700.1(e) is changed as follows:*

~~(d)~~(e) “Data Validity Score (DVS)” means a measure of the overall trustworthiness of the data entered in the AWWA Free Water Audit Software (Audit Software). The DVS represents the validity of the water audit data and is a reflection of the level of best practices employed by the urban retail water supplier.

*Reason for Change: The Department added “urban retail water supplier” to be consistent with the remainder of the proposed regulations and for clarity.*

*Subsection 700.1(f) is deleted as follows:*

~~(f) “Infrastructure Leakage Index” means a performance indicator quantifying how well a distribution system is managed (maintained, repaired, rehabilitated) for the control of real losses at the current operating pressure.~~

*Reason for Change: The Department deleted this definition because this term is not used in the proposed regulations.*

*Subsection 700.1(g) is changed as follows:*

(g) “General manager” means a person that has an executive position with the urban retail water supplier with overall responsibility for managing operations, revenue, and costs. Such a position can also be described as a water department director, city manager, utilities manager, or the director of public works.

*Reason for Change: The Department added a definition of “general manager” because the statute applies the term to those professionals that oversee the operation and management of urban retail water supply systems and there are other titles with the same purpose and meaning for various agencies, thus the definition provides clarity to this term to better meet the statutory intent of who shall attest to the water loss audit report.*

Subsection 700.1(h) is changed as follows:

~~(g)~~(h) “Level 1 validation” means a review of the water loss audit validation process that includes an systematic evaluation of the accuracy of data inputs examination of the data sources used for each input and an evaluation of the DVS selected for each input and the evaluation of the application of data scoring methodology used for of the audit, as described in Section 700.3.

*Reason for Change: The Department made changes to this definition to clarify the term and more closely match the description of the Level 1 validation as discussed in Water Research Foundation’s guidance manual titled: Level 1 Water Audit Validation: Guidance Manual, Project #4639A.*

Subsection 700.1(i) is changed as follows:

~~(i)~~(j) “Non-revenue water” means the portion of the water consumption that is not billed and does not produce revenue. It equals the unbilled authorized consumption plus apparent and real losses.

*Reason for Change: The Department made changes to this definition to clarify the term and more closely match the defined term in the Manual M36.*

Subsection 700.1(j) is changed as follows:

~~(j)~~(i) “Real Losses” means the physical water losses from the pressurized potable water system and the utility’s potable water storage tanks, up to the point of customer consumption.

*Reason for Change: The Department added “potable water” to clarify that this regulation only applies to potable water systems owned and operated by urban retail water suppliers.*

Subsection 700.1(k) is changed as follows:

~~(k)~~(k) “Report” means the water loss audit report of a potable water supply required to be submitted to the Department as specified in Section 700.5.

*Reason for Change: The Department added “potable water supply” to clarify that this regulation only applies to potable water systems owned and operated by urban retail water suppliers.*

Subsection 700.1(l) is changed as follows:

~~(k)~~(l) “Standardized water loss audits” means water loss audits conducted in accordance with the method adopted by the American Water Works Association AWWA, Water Audits and Loss Control Programs, Manual M36, Fourth Edition, and applied in the AWWA Free Water Audit Software, version 5.0 as specified in Section 700.2.

*Reason for Change: The Department changed this to simplify the proposed regulations by referring the reader to the section of the proposed regulations where the method and software versions are specified.*

Subsection 700.1(l) is changed as follows:

~~(l)~~(m) “Urban retail water supplier” means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 ~~end users~~customers or that supplies more than 3,000 acre-feet of potable water annually at retail cost for municipal purposes.

*Reason for Change: The Department made changes to this definition for consistency in terminology.*

Subsection 700.1(n) is changed as follows:

~~(m)~~(n) “Validating” means a process whereby an urban retail water supplier uses a ~~W~~water A~~udit V~~alidator to confirm the basis of data entries in the Reports and to characterize the quality of the reported data. All references herein to “validating” or “validation” refers to “Level 1 validation.”

*Reason for Change: The Department made changes to this definition for consistency in terminology.*

Subsection 700.1(o) is changed as follows:

~~(n)~~(o) “Water audit validation” refers to the process of examining water loss audit inputs to consider ~~verify~~ the water audit’s accuracy and document the sources of ~~uncertainty associated with water audit data in order to communicate the uncertainty inherent in water audit.~~

*Reason for Change: The Department made changes to this definition to clarify the term and more closely match the defined term in the Manual M36.*

Subsection 700.1(p) is changed as follows:

~~(e)(p)~~ "Water Audit Validator" means a person who meets the requirements of section 700.4, to perform the validation of a water loss audit.

*Reason for Change: The Department made changes to this definition for consistency in terminology.*

## **Section 700.2**

Subsection 700.2 is changed as follows:

Urban retail water suppliers shall on an annual basis, conduct water loss audits of their potable water systems in accordance with the methods in Chapter 3 of the American Water Works Association, Water Audits and Loss Control Programs, Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs, 4th Edition, American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80325-3098, 2016, and the AWWA Free Water Audit Software, version 5.0, American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80325-3098 Copyright, 2014, both hereby incorporated by reference into these regulations.

*Reason for Change: The Department added "potable water systems" to clarify that this regulation only applies to potable water systems owned and operated by urban retail water suppliers. The addition of "methods" was done to more closely reflect the statutory language in Section 10608.34(a) of the Water Code. Other changes were made for consistency in terminology.*

## **Section 700.3**

Subsection 700.3(b)(1) is changed as follows:

An interview between the water audit validator, and the person or persons that prepared the water loss audit, and any member of the utility staff with information that the water audit validator believes is necessary to complete the Level 1 audit validation the auditor and utility staff.

*Reason for Change: The Department revised "validator" to "water audit validator" for consistency in terminology. The other additions are made to provide clarity regarding the performance of the interviews between the water audit validator and those that conducted and supported the water loss audit.*

Subsection 700.3(b)(2)(B) is changed as follows:

(B) The reported water volume from its own sources, as documented by the supply meter (s) or other means, as applicable.

*Reason for Change: The Department made changes to this language because not all water sources have meters (e.g., weirs, electricity records, etc.) and for corrections to terminology.*

*Subsection 700.3(b)(2)(C) is changed as follows:*

(C) The reported volume of water imported and exported each month ~~by~~ connection.

*Reason for Change: The Department made the change to more closely match the methodology contained in the Manual M36.*

*Subsection 700.3(b)(2)(D) is changed as follows:*

(D) The documentation of the customer meter accuracy derivations, including supply meter testing and calibration.

*Reason for Change: The Department made this change to more closely match the methodology contained in the Manual M36.*

*Subsection 700.3(b)(2)(E) is changed as follows:*

(E) The reported volume of ~~water sold~~ authorized consumption each month broken down by water rate, if different rates are applied to water users.

*Reason for Change: The Department made the change to more closely match the methodology contained in Manual M36.*

*Subsection 700.3(b)(3) is changed as follows:*

(3) A review and evaluation of the accuracy of performance indicators included in the AWWA Free Audit Software.

*Reason for Change: The Department made the change to correct the nomenclature and for consistency.*

*Subsection 700.3(b)(4) is changed as follows:*

(4) A review of audit inputs and ~~data validity grades~~ DVS to confirm a correct application of methodology, and follow-up reviews (if indicated).

*Reason for Change: The Department made the change to more closely match the terminology contained in the Manual M36.*

*Subsection 700.3(b)(5)(A) is changed as follows:*

(5) A summary of the validation, including:

(A) Name and contact information of the ~~W~~water ~~A~~audit ~~V~~validator.

*Reason for Change: The Department made these changes to correct the nomenclature to be consistent.*

*Subsection 700.3(b)(5)(B) is deleted as follows:*

~~(B) Results of the initial performance indicator review.~~

*Reason for Change: The Department deleted this subsection because it is addressed in the renumbered subsection 700.3(b)(5)(D) and 700.3(b)(5)(E).*

*Subsection 700.3(b)(5)(C) is changed as follows:*

~~(GB) A summary of the Level 1 validation utility staff interview, including the basis for the input derivations and the DVS selections.~~

*Reason for Change: The Department changed this subsection to include the documentation process of the Level 1 validation.*

*Subsection 700.3(b)(5)(D) is deleted as follows:*

~~(D) Recommendations for changes to data validity grades and rationale therefore, if changes are recommended.~~

*Reason for Change: The Department deleted this subsection because it is addressed in the renumbered subsection 700.3(b)(5)(D) and 700.3(b)(5)(E).*

*Subsection 700.3(b)(5)(E) is deleted as follows:*

~~(E) Any recommended changes to water audit inputs and rationale~~

*Reason for Change: The Department deleted this subsection because it is addressed in the renumbered subsection 700.3(b)(5)(D), 700.3(b)(5)(E) and subsection 700.3(b)(5)(F).*

*Subsection 700.3(b)(5)(E) is changed as follows:*

~~(HE) Any recommendations for [further] validation or water loss audit improvements.~~

*Reason for Change: The Department made this change to correct the nomenclature and for consistency.*

## **Section 700.4**

*Subsection 700.4(a) is changed as follows:*

~~(a) For purposes of Reports submitted prior on or before June 30, 2019 or until the date that the CA-NV AWWA establishes a water audit validator certificate program, a Water Audit Validator means:~~

*Reason for Change: The Department made these changes for clarity and to correct the nomenclature to be consistent with terms.*

*Subsection 700.4(a)(1) is changed as follows:*

~~(1) a contractor working in the CA-NV AWWA Water Loss Technical Assistance Program ("Water Loss TAP") performing water loss audit training and conducting audit validations-, or~~

*Reason for Change: The Department made this change for readability and clarity.*

*Subsection 700.4(a)(2) is changed as follows:*

(2) a person who can demonstrate ~~having conducted~~ that their primary business practice is conducting water loss audits in accordance with the ~~AWWA's Water Audits and Loss Control Programs, Manual M36 (4th edition), American Water Works Association, Water Audits and Loss Control Programs Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs, 4th Edition, American Water Works Association, 2016, and the AWWA Free Water Audit Software, version 5.0, and has~~ ~~having~~ conducted a minimum of ~~30~~ 10 Level 1 audit validations in accordance with the Water Research Foundation Standard ~~Level 1 Water Audit Validation: Guidance Manual 4639A (Water Audit Validation), or;~~

*Reason for Change: The Department made these changes for readability and clarity.*

*Subsection 700.4(a)(3) is added as follows:*

(3) ~~an individual certified by the CA-NV AWWA as a water audit validator.~~

*Reason for Change: The Department made this change to allow a person that has been certified by the CA-NV AWWA as a water audit validator to perform validations, if the CA-NV AWWA establishes a Water Audit Validator certificate prior to June 30, 2019.*

*Subsection 700.4(b) is changed as follows:*

(b) For purposes of Reports submitted ~~on or~~ after July 1, 2019, a ~~qualified~~ water loss ~~audit~~ validator means an individual certified by the CA-NV AWWA as a ~~W~~water ~~A~~audit ~~V~~validator.

*Reason for Change: The Department made these changes for clarity.*

*Subsection 700.4(c) is changed as follows:*

(c) An urban retail water supplier may conduct a water loss audit validation for its own water loss audit provided the person performing the validation meets the requirements ~~described in subsections (a), (b) and (d)~~ in this Section.

*Reason for Change: The Department made these changes for clarity.*

*Subsection 700.4(d) is changed as follows:*

(d) A ~~W~~water ~~A~~audit ~~V~~validator may not conduct a water loss audit validation if ~~they~~ he or she participated in compiling the water loss audit.

*Reason for Change: The Department made these changes to promote readability and correct the nomenclature and promote consistency.*

## **Section 700.5**

*Subsection 700.5(a)(1) and (2) are added as follows:*

(a) Not later than October 1, 2017, and by October 1 of every year thereafter, urban retail water suppliers shall submit a Level 1 validated Report to the Department. The Report shall include data spanning 12 consecutive months, as follows: for either the previous calendar year or the water supplier's fiscal year.

(1) For utilities that prefer to provide Reports on a calendar year basis the reporting period shall be for calendar year 2016 and annually thereafter

(2) For utilities that prefer to provide Reports on a fiscal year basis that is not on the calendar year the reporting period shall be for their fiscal year 2015-16 or fiscal year 2016-17 and annually thereafter

*Reason for Change: The Department made these additions to account for the difficulty that some utilities may have in conducting validated water loss audits under short lead times.*

*Subsection 700.5(a)(3) is added as follows:*

(3) For the fiscal portions of the Report, utilities may use the previous year's fiscal information

*Reason for Change: The Department made this addition to accommodate utilities that do not have their current fiscal financial accounting information available at the time that the Report is being prepared. Allowing them to use the previous year's information will not be a detriment to the overall Report.*

*Subsection 700.5(b)(1-3) are changed as follows:*

(b) Reports under subsection (a) shall be submitted in two separate files. One file shall be in a complete and fully operational water loss audit spreadsheet format generated from the AWWA Free Audit Software, that contains the water audit information specified in subsection (1) below. The second file shall be a document file in Adobe Acrobat that contains the information contained specified and shall contain in subsections (2) thru subsection (4) below:

(1) System-specific data entered into each field in the reporting water loss audit spreadsheet worksheets of the AWWA Free Water Audit Software, with a data validity score DVS.

~~(2) Beginning in 2018, i~~Information identifying steps taken by the urban retail water supplier in the preceding 3 years to increase the validity of data entered into the final audit, reduce the volume of apparent losses, and/or reduce the volume of real losses, as informed by the annual validated water audit.

~~(3) In the case of urban retail water suppliers with two or more separate public water systems, separate worksheets meeting the requirements in Section 700.5(b)(1) for each water system. A statement confirming the Level 1 validation of the submitted water loss audit, including the validation findings, and documenting the following:~~

(A.) Identification of the water audit validator.

(B.) Qualification of the water audit validator.

(C.) Date of the Level 1 validation review.

*Reason for Change: The Department made the change to subsection (b) to improve clarity of the expected content and nature of the Report. The change to subsection (b)(1) was made to clarify the requirement for the portion of the report that contained the AWWA Audit spreadsheet. The changes to subsections (b)(2) and (b)(3) were to done to clarify the requirement for the portion of the report that includes information other than the AWWA Audit spreadsheet. The stricken language in subsection 700.5(b)(3) was moved to subsection 700.5(c), which was revised.*

*Subsection 700.5(c) was revised as follows:*

(c) In the case of urban retail water suppliers with two or more separate public potable water systems, the urban retail water supplier shall submit either separate AWWA Free Water Audit Software spreadsheet worksheets meeting the requirements in Section 700.5(b)(1) for each potable water system or a combined set of spreadsheet worksheets for its potable water systems.

*Reason for Change: The Department changed this subsection because it was noted during the comment period that not all utilities have a data system that separates data from their separate water systems. For that reason, separating water system data for each water supplier's public potable systems was changed from being a mandatory requirement, although it is preferred. This subsection was moved to improve clarity.*

*Subsection 700.5(c) was moved to subsection (d) as follows:*

~~(b)~~ Reports required under subsection (a) shall be submitted using the Department's online submittal tool for validated water loss audit Reports.

*Reason for Change: The Department made these changes to promote readability and correct the nomenclature and promote consistency. Subsections were moved and appropriately renumbered.*

## Section 700.6

*Subsection 700.6(a)(1) was changed as follows:*

(1) Tthe Report was properly validated, including whether it was validated by an individual with the qualifications specified in Section 700.4 of this Chapter. ~~Documentation of validation shall include the date of validation completion, the validation findings, and the certification and identification of the qualified water loss validator.~~

*Reason for Change: The Department made the change because it is redundant due to changes made in Section 700.5(b)(3).*

*Subsection 700.6(a)(2) was changed as follows:*

(2) ~~T~~the data and ~~data grading scores~~ **DVS** in the audit sheet indicate that the system is operating in a manner that is congruent with known characteristics of **potable** water system operations. To evaluate congruency, the Department may consider the presence and significance of any of the following conditions:

(A.) The real losses are less than 0.0.

(B.) The cost of the non-revenue water is greater than 100% of operating costs.

*Reason for Change: The Department made the change to more closely match the terminology contained in the Manual M36 and to clarify that this regulation only applies to potable water systems owned and operated by urban retail water suppliers.*